

## Claims

### HYDRAZIDES AND DERIVATIVES PRODUCTION PROCESS FROM HYDRAZINES AND DICARBOXYLIC ACIDS.

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- 1- Process to produce hydrazides and their derivatives, characterized in that the reaction of a dicarboxylic acid having general formula (I):

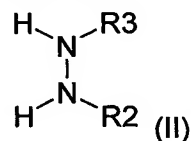


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wherein **R1** can be hydrogen, alkyl, alkenyl, alkynyl, phenyl, aromatic heterocyclic ring containing as heteroatom S, O and/or N, heterocyclic non-aromatic ring containing as heteroatom S, O and/or N, cycloalkyl containing from 3 to 8 carbon atoms, cycloalkenyl containing from 3 to 8 carbon atoms, cycloalkynyl containing from 3 to 8 carbon atoms; all the described groups can be further substituted and/or branched;  
**n** varies from 1 to 2;

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with a hydrazine of general formula (II)



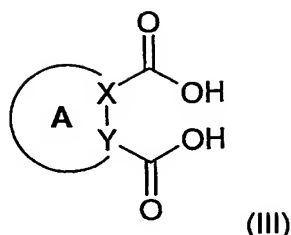
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wherein **R2** and **R3** are, independently, hydrogen, alkyl, alkenyl, alkynyl, phenyl, heterocyclic aromatics containing as heteroatom S, O and/or N, heterocyclic non-aromatics containing as heteroatom S, O and/or N, cycloalkyl containing from 3 to 8 carbon atoms, cycloalkenyl containing from 3 to 8 carbon atoms, cycloalkynyl containing from 3 to 8 carbon atoms;

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in the presence of a Lewis acid.

- 2- Process to produce hydrazides and their derivatives, characterized in that the reaction of a dicarboxylic acid having general formula (III):



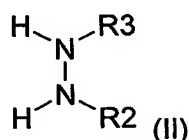
wherein **A** can be an aromatic heterocyclic ring containing from 4 to 8 atoms, a non-aromatic ring containing from 4 to 8 atoms, an aromatic heterocyclic ring containing from 4 to 8 atoms, wherein the heteroatom is S, O and/or N, a non-aromatic heterocyclic ring containing from 4 to 8 atoms, wherein the heteroatom is S, O and/or N; all the described groups can be further substituted and/or branched;

ring **A** can further have 1 or more aromatic, non-aromatic, aromatic heterocyclic, non-aromatic heterocyclic rings and mixtures thereof, coupled, wherein the heteroatom can be N, O, and/or S;

**X** can be C or N;

**Y** can be C or N;

with a hydrazine of a general formula (II)



wherein **R2** and **R3** are, independently, hydrogen, alkyl, alkenyl, alkynyl, phenyl, heterocyclic aromatics containing as heteroatom S, O and/or N, heterocyclic non-aromatics containing as heteroatom S, O and/or N, cycloalkyl containing from 3 to 8 carbon atoms, cycloalkenyl containing from 3 to 8 carbon atoms, cycloalkynyl containing from 3 to 8 carbon atoms;

in the presence of a Lewis acid.

3- Process, in accordance to claims 1 or 2, characterized in that the Lewis acid is halide donator.

4- Process, in accordance to claim 3, wherein the Lewis acid is an halide donator chosen from the group consisting of aluminum chloride,

antimony trichloride, antimony pentachloride, arsenic trichloride, arsenic pentachloride, beryllium chloride, bismuth trichloride, boron trifluoride, boron trichloride, cadmium chloride, copper chloride (I), copper chloride (II), cobalt chloride, chromo trichloride, gallium chloride, iron chloride (III), mercury chloride (II), magnesium chloride, magnesium bromide, nickel chloride, niobium pentachloride, titanium dichloride, titanium trichloride, titanium tetrachloride, tellurium tetrachloride, uranium tetrachloride, zirconium tetrachloride, zinc chloride and mixture of them.

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5- Process, in accordance to claim 4, characterized in that the halide donator Lewis acid is niobium pentachloride.

6- Process, in accordance to claims 1 or 2, characterized in that the dicarboxylic acid is suspended in an organic solvent.

7- Process, in accordance to claim 6, characterized in that the organic solvent is an aprotic polar organic solvent.

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8- Process, in accordance to claim 7, characterized in that the solvent is chosen from the group consisting of dioxane, acetone, methylpyrrolidone, dimethylsulfoxide, N,N-dimethylformamide and mixture of them.

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9- Process, in accordance to claims 1 or 2, characterized in that the hydrazine is soluble in water or in the reaction solvent.

10- Process, in accordance to claim 2, characterized by the reaction of 1-nitro-phtalic acid with hydrazine in the presence of niobium pentachloride.

11- Kit of a chemiluminescent substance characterized by comprise:

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a) a first formulation comprising (solution A):

- a chemiluminescent substance; and
- an alkalinizing agent;

b) a second formulation comprising (solution B):

- hydrogen peroxide;
- water.

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- 12- Kit, in accordance to claim 11, characterized in that the chemiluminescent substance concentration is from 0.75 g/L to 7.0 g/L.
- 13- Kit, in accordance to claim 11, characterized in that the hydrogen peroxide concentration is from 1.0% w/w to 5.0% w/w.
- 5 14- Kit, in accordance to claim 11, characterized in that the second formulation pH is from 8 to 14.
- 15- Kit, in accordance to claim 11, characterized in that the alkalinizing agent is an alkaline metal hydroxide.
- 10 16- Kit, in accordance to claim 15, characterized in that the alkalinizing agent concentration is from 0.05M to 3M.
- 17- Kit, in accordance to claims 15 and 16, characterized in that the alkalinizing agent concentration is from 0.1M to 0.5M.
- 18- Kit, in accordance to claim 11, characterized in that the simultaneous application of solutions A and B in the local to be analyzed will promote the chemiluminescent reaction.
- 15 19- Kit, in accordance to claim 11, characterized in that the chemiluminescent substance is obtained from the process of claim 1.
- 20- Kit, in accordance to claim 19, characterized in that the chemiluminescent substance is luminol.